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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,792	08/10/2005	Shigeaki Maruyama	265433US6PCT	3023

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CHOW, YUK

ART UNIT	PAPER NUMBER
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2629

NOTIFICATION DATE	DELIVERY MODE
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01/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/525,792	Applicant(s) MARUYAMA ET AL.	
	Examiner Yuk C. Chow	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date
:11/29/2006;09/05/2006; 02/25/2005 .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. (US 2001/0035854 A1) in view of Wood et al. (US 20060181179 A1).

As to claim 1, Rosenberg discloses an input device comprising:

a touch panel with which a user performs input operation of information by touching the touch panel (Fig. 6(16) and [0050]);

a vibration generation device for feeding back, to the user, various kinds of sense of touch in accordance with the type of the information through the touch panel (see Abstract); and

a vibration control circuit for allowing the vibration generation device to generate various forms of vibrations in accordance with the type of the information (see [0032]), the vibration generation device being a bimorph piezoelectric actuator (Fig. 6(64)) including a first actuator unit (Fig. 6(66)) and a second actuator unit (Fig. 6(68)) stacked on the first actuator unit (see [0050]).

However, Rosenberg does not teach when one of the first and second actuator units expands, the other contracts, each of the first and second actuator units having multi-layered piezoelectric element layer.

Wood discloses a high performance piezoelectric actuator wherein comprising multiple layers of piezoelectric element (see Fig. 2), Wood also teaches the mechanic of bimorph actuator, i.e. expanding and contracting (see [0090]).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to incorporate multi-layers of piezoelectric element as in Wood into the input device of Rosenberg, because this improves actuator's performance (see Wood [0011]).

As to claim 2, Rosenberg and Wood disclose an input device according to claim 1, further comprising:

an image display unit that displays information (see Rosenberg Fig. 8a), wherein the user can perform the input operation of information by touching a portion on the touch panel corresponding to the position at which the information of the image display unit is displayed, and the vibration generation device is disposed in the image display unit (see Rosenberg [0072]-[0073]).

As to claim 3, Rosenberg and Wood disclose an input device according to claim 2, wherein electrodes are disposed on both sides of each of the piezoelectric element included in the first and second actuator units (see Wood [0011]).

As to claim 4, Rosenberg and Wood disclose an input device according to claim 2, wherein the bimorph piezoelectric actuator includes:

a first support portion disposed between one end portion of the bimorph piezoelectric actuator and image display unit (see Rosenberg Fig. 5(52));

a second support portion disposed between the other end portion of the bimorph piezoelectric actuator and image display unit (see Rosenberg Fig. 5(52)); and

a third support portion disposed between the center of the bimorph piezoelectric actuator and touch panel (see Rosenberg Fig. 5(54)).

As to claim 5, Rosenberg and Wood disclose an input device according to claim 4, wherein the first, second and third support portions have flexibility in the rotation direction different from the direction that the user touches the touch panel (See Rosenberg Fig. 5, 6 (Z)).

As to claim 6, Rosenberg and Wood disclose an input device according to claim 5, wherein each of the first and second support portions has a projection and soft adhesive for fixing the projection to the bimorph piezoelectric actuator and image display unit (see Rosenberg Fig. 6(62)), and third support portion has a projection and soft adhesive for fixing the projection to the bimorph piezoelectric actuator and touch panel (see Rosenberg Fig. 6(70)).

As to claim 7, Rosenberg and Wood disclose an input device according to claim 2, wherein the bimorph piezoelectric actuator includes a support portion disposed between one end portion of the bimorph piezoelectric actuator and image display unit and another support portion disposed between the other end portion of the bimorph piezoelectric actuator and touch panel (see Rosenberg Fig. 8b(90) and [0075]).

As to claim 8, Rosenberg and Wood disclose an input device according to claim 2, wherein the bimorph piezoelectric actuator includes support portions disposed between one end portion of the bimorph piezoelectric actuator and touch panel and

between the other end portion of the bimorph piezoelectric actuator and touch panel, respectively (see Rosenberg Fig. 8b(90) and [0075]).

As to claim 9, Rosenberg and Wood disclose an input device according to claim 8, wherein a spindle is fixed to the intermediate portion of the bimorph piezoelectric actuator (see Rosenberg Fig. 6(70)).

As to claim 10, Rosenberg and Wood disclose an device according to claim 2, wherein the image display unit is constituted by a liquid crystal display unit and has a dust seal (see Rosenberg Fig. 8a(88)) that prevents dust from entering between the touch panel and liquid crystal display unit (see Rosenberg [0075]).

As to claim 11, Rosenberg and Wood disclose an input device according to claim 2, wherein the vibration control circuit stores a plurality of vibration control waveform patterns for the bimorph piezoelectric actuator, and the vibration control waveform patterns corresponds to the information items displayed on the image display unit (See Rosenberg [0055][0056]).

As to claim 12, Rosenberg and Wood disclose an input device according to claim 11, wherein the vibration control waveform pattern stored in the vibration control circuit can be rewritten (see Rosenberg [0059]).

As to claim 13, Rosenberg and Wood disclose an input device according to claim 11, wherein the vibration generation device includes an electromotive force detection device that detects an electromotive force (see Wood Col. 3 table 1 (Blocked force) which is generated depending on the pressing force of the user and applied to the bimorph piezoelectric actuator (see Wood [0041]-[0045]).

Regarding apparatus claims 14, 15 and 16, limitations within are identical to claim 1, 2 and 3 respectively, therefore, same rejections apply.

As to claim 17, Rosenberg and Wood disclose an electronic apparatus according to claim 14, wherein the electronic apparatus is a portable electronic apparatus (see Rosenberg Fig. 8a).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuk C. Chow whose telephone number is 571 270-1544. The examiner can normally be reached on 8-6 M-TH E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER